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ABSTRACT

Exploring ways to help primary school teachers extend the literacy of their pupils, this paper devises and classroom-tests strategies whereby teachers might develop the abilities of their children to use literacy more effectively as a means of learning. It focuses on the reading and writing of non-fiction text. Outlining four basic insights into the nature of the learning process, the paper discusses learning as a process of interaction between what is known and what is to be learned. It describes learning as a social process, as a situated process, and as a metacognitive process. It considers four principles for teaching, the development of a model for teaching and application of that model, and a way to support students throughout the learning process without continual attention from the teacher. There are great potential benefits in the application of these principles in the teaching of literacy. (Contains 17 references.) (SC)

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From Learning to Teaching: Towards a Model of Teaching Literacy

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From learning to teaching: Towards a model of teaching literacy

David Wray and Maureen Lewis

Introduction

For the past three years we have been involved in a project, funded by the Nuffield Foundation, which has been exploring ways to help primary school teachers extend the literacy of their pupils. The main focus of the Exeter Extending Literacy (EXEL) project has been to devise and classroom-test strategies whereby teachers might develop the abilities of their children to use literacy more effectively as a means of learning. Our work has, therefore, tended to concentrate upon the reading and writing of non-fiction text, an area which has been rather neglected in the past in terms of both research and the development of practice.

Although our main target group has been children between the ages of 7 and 12, we have realised through our work with teacher groups across the country that there are many implications for other areas of the educational service. Our ideas have been picked up and developed by teachers of infant children and also of children with special needs at various phases of schooling. This extension has not simply been at the level of practical teaching approaches but also in terms of of the theoretical principles underlying these approaches.

In this article we shall outline our current ideas about learning and teaching and relate them to teaching approaches used in our project. We shall begin by examining what we feel we have learnt from recent research into the nature of learning. We shall then go on to discuss a model of the teaching process and try to illustrate this by describing some teaching activities.

What do we know about learning?

Four basic insights into the nature of the learning process have come from research over the past decade or so. Each of these has important implications for approaches to teaching.

(i) Learning is a process of interaction between what is known and what is to be learnt.

It has become quite clear that, in order to do any real learning, we have to draw upon knowledge we already have about a subject. The more we know about the subject, the more likely it is that we shall learn any given piece of knowledge. Brown (1979) has described this as "headfitting", by which is simply meant that the closer the distance

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between what is already known by the learner and the particular information to be learnt, the more likely it is that learning will be successful. Learning which does not make connections with our prior knowledge is learning at the level of rote only, and is soon forgotten once deliberate attempts to remember it have stopped. (Most people can remember times they learnt material in this way, usually as preparation for some kind of test: once the test was over, the information "went out of their heads".)

Learning has been defined as "the expansion and modification of existing ways of conceiving the world in the light of alternative ways" (Wray & Medwell, 1991, p. 9). Such a constructivist approach to learning places great emphasis upon the ways in which prior knowledge is structured in the learner's mind and in which it is activated during learning. Theories about this, generally known as schema theories as they hypothesise that knowledge is stored in our minds in patterned ways (schema) (Rumelhart, 1980), suggest that learning depends, firstly, upon the requisite prior knowledge being in the mind of the learner and, secondly, upon it being brought to the forefront of the learner's mind.

(ii) Learning is a social process.

Ideas about learning have progressed significantly away from Piaget's purely 'lone scientist' view of learners as acting upon their environments, observing the results and then, through reflection, modifying or fine-tuning their schema concerning these environments. Modern learning theory gives much greater recognition to the importance of social interaction and support and posits a view of the learner as a social constructor of knowledge. In collaboration with others, learners establish:

shared consciousness: - a group working together can construct knowledge to a higher level than can the individuals in that group each working separately. The knowledge rests upon the group interaction.

borrowed consciousness: - individuals working alongside more knowledgeable others can 'borrow' their understanding of tasks and ideas to enable them to work successfully. Vygotsky has termed the gap between what a learner can do in collaboration with others and what he/she can do alone, the "Zone of Proximal Development" and suggests that all learning in fact occurs twice in the learner: once on the social plane and once on the individual.

(iii) Learning is a situated process.

We learn everything in a context. That is not controversial. But modern learning theorists also suggest that what we learn is the context as much as any skills and processes which we use within that context (Lave & Wenger, 1991). Psychologists have sought in vain for 'generalisable skills' and all teachers are familiar with the problem of transfer of learning. Why is it that a child who spells ten words correctly in a spelling test, is likely to spell several of these wrongly when writing a story a short while afterwards? The answer is simply that the learning of the spelling is so inextricably bound up with the context of learning that it cannot easily be applied outside of this context.

There are many instances of this which will be familiar to most teachers. In one class, for

example, we encountered a boy who was an expert at quoting horse racing odds but could not manage school 'sums' although the mathematical content of these was actually much simpler. Similarly, many tradesmen like decorators, carpenters, plumbers have to perform very complex mathematical calculations as part of their everyday jobs yet for many mathematics would have been an area of some difficulty when at school. Medwell (1993) reports how, in her research into children's writing, she found one girl who showed no evidence at all of drafting or revising in her school writing and showed no awareness of this when talking about her writing. She was, however, the organiser of a club for her friends at home and had produced a written set of club rules which showed a number of signs of having been revised. She had certainly not transferred her understanding from one context to another.

(iv) Learning is a metacognitive process

A good deal of interest has been aroused by the notion that the most effective learners are those who have a degree of awareness about their own levels of understanding of what they are learning. Vygotsky suggested (1962) that there are two stages in the development of knowledge: firstly, its automatic unconscious acquisition (we learn things or how to do things, but we do not know that we know these things), and secondly, a gradual increase in active conscious control over that knowledge (we begin to know what we know and that there is more that we do not know). This distinction is essentially the difference between the cognitive and metacognitive aspects of knowledge and thought. The term metacognition is used to refer to the deliberate conscious control of one's own cognitive actions (Brown, 1980). Numerous research studies have examined the operation of metacognition in the reading of children and adults, that is, how successful readers are at monitoring their own comprehension. Overall, there has been a remarkable consistency in the findings of these studies and the two most replicated results have been that:

a) "younger and poorer readers have little awareness that they must attempt to make sense of text; they focus on reading as a decoding process, rather than as a meaning-getting process" (Baker & Brown, 1984, p.358)
b) "younger children and poorer readers are unlikely to demonstrate that they notice major blocks to text understanding. They seem not to realise when they do not understand" (Garner & Reis, 1981, p.571).

Arising from such work there has been a strong suggestion that learning can be improved by increasing learners' awareness of their own mental processes.

Principles for teaching

Some clear principles for teaching emerge from these insights.

We need to ensure that learners have sufficient previous knowledge/understanding to enable them to learn new things, and to help them make explicit these links between what they already know and what they are learning.

We need to make provision for group interaction and discussion as teaching strategies, both in small, teacher-less groups and in groups working alongside experts.

We need to ensure meaningful contexts for learning, particularly in basic literacy skills. This implies some kind of negotiation of the curriculum for learning. What is a meaningful context for teachers cannot be assumed automatically to be a meaningful context for learners.

We need to promote learner's knowledge and awareness of their own thinking and learning. This might be done by, for example, encouraging them to think aloud as they perform particular cognitive tasks.

Towards a model for teaching.

Palincsar & Brown (1984) describe a teaching procedure which begins from the principles just outlined. Working with the aim of improving students' abilities to respond effectively to text, they begin by arguing that most attempts to train students to do this have produced rather discouraging outcomes, with teaching apparently having little real impact upon learners' use of strategies for making sense of textual materials and, particularly, on the transfer of these strategies to activities outside those directly experienced during the teaching context. They attribute this failure to effect real change in learners' approaches to dealing with text to a model of learning which sees learners as simply responding, relatively passively, to instruction without really being made aware of just what they are learning and why. They claim that teaching, to be successful, needs to encourage learners to be active in their use of strategies and to understand why, and when, they should use the strategies to which they are introduced.

The model of teaching they propose as an alternative is based upon the twin ideas of 'expert scaffolding' and what they refer to as 'proleptic' teaching: that is, teaching in anticipation of competence. This model arises from the ideas of Vygotsky (1978), who put forward the notion that children first experience a particular cognitive activity in collaboration with expert practitioners. The child is firstly a spectator as the majority of the cognitive work is done by the expert (parent or teacher), then a novice as he/she starts to take over some of the work under the close supervision of the expert. As the child grows in experience and capability of performing the task, the expert passes over greater and greater responsibility but still acts as a guide, assisting the child at problematic points. Eventually, the child assumes full responsibility for the task with the expert still present in the role of a supportive audience. Using this approach to teaching, children learn about the task at their own pace, joining in only at a level at which they are capable - or perhaps a little beyond this level so that the task continually provides sufficient challenge to be interesting. The approach is often referred to as an apprenticeship approach and most primary teachers will be familiar with its operation in the teaching of reading (Waterland, 1985). In the apprenticeship approach to reading, the teacher and child begin by sharing a

book together with, at first, most of the actual reading being done by the teacher. As the child develops confidence through repeated sharings of the book, he/she gradually takes over the reading until the teacher can withdraw entirely.

The distance between the level at which children can manage independently and which they can manage with the aid of an expert is termed by Vygotsky 'the zone of proximal development' and it is, according to the model of teaching which has begun to emerge from these ideas, the area in which the most profitable instruction can proceed. Vygotsky claimed that "what children can do with the assistance of others might be in some sense even more indicative of their mental development than what they can do alone" (1978, p.85).

Most of us will have had experience of being taught in this way, even if those teaching us could not explain their pedagogical theory in these terms. I learnt to drive a car by sitting alongside an expert driver who had over-riding control of the driving mechanisms (the pedals) and was operating these, without my knowledge, to make sure I did nothing likely to dent my confidence. I taught my daughter to swim by walking alongside her in the water and holding her around the middle while she kicked and splashed her arms. Eventually I began to let go for seconds at a time, then minutes until finally she set off across the pool entirely unaided.

There appear to be four stages to the teaching process implied by the model.

(i) Demonstration.

During this stage, the expert models the skilful behaviour being taught. There is some evidence that learning can be assisted if this modelling is accompanied by a commentary by the expert, thinking aloud about the activities being undertaken. One relatively simple procedure is that of the teacher modelling how he/she tackles the skills he/she is teaching, that is, reading or writing in such a way that the learners have access to the thought processes which accompany these activities. Tonjes (1988) discusses metacognitive modelling as a way of teachers demonstrating to children the reading and comprehension monitoring strategies which they use and argues that teachers using this approach should concentrate upon modelling mental processes - what they think as they read or write - rather than simply procedures - what they do. Only in this way, she suggests, can children learn strategies which they can apply across a range of situations rather than which are limited to the context in which they were encountered.

(ii) Joint activity.

The expert and the learner share the activity. This may begin by the expert retaining responsibility for the difficult parts while the learner takes on the easy parts, while in some teaching strategies prior agreement is reached that participants will take turns at carrying out sections of the activity. The expert is always on hand to take full control if necessary. One of the best examples of this joint activity is that known as 'paired reading' (Morgan,

1986) in which the teacher (or parent) and the learner read aloud in unison until the learner signals that he/she is ready to go it alone. The teacher withdraws from the reading but is ready to rejoin if the learner shows signs of difficulty such as prolonged pausing or reading errors.

(iii) Supported activity.

The learner undertakes the activity alone, but under the watchful eye of the expert who is always ready to step in if necessary. In our own work on the reading and writing of non-fiction we have found that this is the stage in the process which is most often neglected and teachers tend to move too rapidly from heavily supporting the children's work to asking them to work without support. Consequently, this is the stage at which most of our practical teaching strategies are aimed. We shall briefly describe two of these later in this article.

(iv) Individual activity.

The learner assumes sole responsibility for the activity. Some learners will, of course, move much more rapidly to this stage than others and the teacher needs to be sensitive to this. It is, arguably, equally as damaging to hold back learners by insisting they go through the same programme of support and practice as everyone else as it is to rush learners through such a programme when they need a more extensive programme of support.

The model in action

Reciprocal teaching

A set of teaching procedures based upon this apprenticeship model was designed by Palincsar & Brown (1984) to try to develop the reading and comprehension monitoring of a group of 11 year olds with reading problems. Their approach used what they termed 'reciprocal teaching' to focus upon four activities:

a) summarising - asking the children to summarise sections of text, thereby encouraging them to focus upon the main ideas in a passage and to check their own understanding of these,

b) questioning - getting the children to ask questions about what they read, again encouraging them to attend to the principal ideas and to think about their own comprehension of these,

c) clarifying - asking the children to clarify potentially problematic sections of text, requiring them to evaluate the current state of their understanding,

d) predicting - getting them to go beyond the words of the text to make inferences which they must justify by reference to what they read. Each of these activities had a cognitive and a metacognitive dimension in that not only were the children working upon their comprehension of the texts (comprehension fostering) but they also having to reflect upon the extent of their comprehension (comprehension monitoring).

The reciprocal teaching procedure involved an interactive 'game' between the teacher and the learners in which each took it in turns to lead a dialogue about a particular section of text. The 'teacher' for each section firstly asked a question, then summarised, then clarified and predicted as appropriate. The real teacher modelled each of these activities and the role played by the children was gradually expanded as time went on from mostly pupil to mostly teacher

This procedure was tested on a group of eleven year olds with reading difficulties. These children did initially experience some difficulties in taking over the role of teacher and needed a lot of help in verbalising during summarising, questioning, clarifying and predicting. They did eventually, however, become much more accomplished leaders of the comprehension dialogues and showed a very significant improvement on tests of reading comprehension, an improvement which seemed to generalise to other classroom activities and did not fade away after the completion of the research project. Palincsar & Brown attribute the success of their teaching programme to the reciprocal teaching procedure, suggesting that it involved extensive modelling of comprehension fostering and monitoring strategies which are usually difficult to detect in expert readers, that it forced children to take part in dialogues about their understanding even if at a non-expert level and that they learnt from this engagement.

Gilroy & Moore (1988) report on the results of their replication of the Palincsar & Brown reciprocal teaching procedure with 9 to 13 year olds in New Zealand. They found that positive gains in comprehension test scores were made by these children. In a review of research on the reciprocal teaching approach Moore (1988) agrees with the Palincsar & Brown analysis of the strengths of the approach and suggests that it has a great deal to offer, particularly to children with identifiable weaknesses in reading comprehension.

Meta-reading

As an example of this, here is an extract from one of the classrooms in which we have been working. The class were doing some work on the topic of "Engines" and the teacher was sharing with them a book about this topic. She began by sharing a photocopied extract from the book with a group of children. She accompanied her reading of this text by a commentary explaining her thinking as she worked with its ideas. Here is the first part of her reading (the words in italics are directly read from the text):

"Now, this passage is called The Steam Engine. I hope it might tell me something about how steam engines work and perhaps about how they were invented. I know that James Watt made the first steam engine. I suppose the passage might tell me when this happened. I'll read the first sentence or so. *The power developed by steam has fascinated people for hundreds of years. During the first century AD, Greek scientists realised that steam contained energy that could possibly be used by people.* Oh, it looks like the power of steam has been known about for longer than I thought. The first century AD - that's around 1800 years ago. I'm not sure what it means about steam containing energy though. I'd better read carefully to try to find that out."

During this meta-reading, the teacher was concentrating on doing four kinds of things. She was:

predicting, looking forward to the information the text might give her;
clarifying, working out ideas in ways she could better understand them;
questioning, allowing the text to spark off further questions in her mind;
summarising, putting the information in the text into a few words.

These four activities were discussed explicitly with the group and written on large cards which were displayed in the classroom. Later, with a different passage, the teacher agreed with the group that they would take it in turns to predict what the passage might be going to be about, to clarify what it told them, to ask questions about what they read and to summarise what they learnt.

Later still, the group were given the task of reading a passage amongst themselves using the same strategies to guide their discussion.

The ultimate aim, of course, was that they would become sufficiently familiar with this procedure for interacting with a text that they were able to adopt it when reading themselves. What they learnt as a social activity would become internalised and individual.

Extending the scaffolding

As mentioned above, we have drawn the conclusion from our work in schools that teachers have a tendency to withdraw too quickly the support (scaffolding) they offer to learners who are struggling to master new skills. One of the main emphases of our work has been to find ways in which learners might be given support without the necessity for the teacher to be constantly with them, which, of course, is impossible. I shall describe here just two of the support structures we have been using, both of which relate particularly to readers finding and using information from non-fiction texts.

KWL grids

The KWL grid was developed as a teaching strategy in the USA (Ogle, 1989) and is a simple but effective strategy which both takes readers through the steps of the research process and also records their learning. It gives a logical structure for tackling research tasks in many areas of the curriculum and it is this combination of a simple but logical support scaffolding that seems to be so useful to readers with learning difficulties. A KWL grid consists of three columns:

K - What do I know already about this
W - What do I want to know now?
L - What have I learnt?

The first two of these set the scene for the reading by requiring thought about prior knowledge and just what the reader predicts he/she might learn from the material to be read. The third column acts as a note-taking space.

From extensive use of this strategy we have found two major benefits from it. Firstly, because it begins with the reader's knowledge, it makes the copying out of large sections from the text very unlikely. Most teachers of junior-aged children will recognise the copying phenomenon as one of their biggest problems in teaching children to read for information, an observation which is probably not confined to that age group.

Secondly, it seems that children readily recognise the usefulness of the strategy. We have examples of children who, having been introduced to the KWL strategy, continue to use it independently because they see its usefulness. Most of these examples are, in fact, children with reading problems for whom the very significant improvement in 'research' work which the KWL inspires is an important motivator.

Writing frames

We have developed the idea of writing frames which simply give the basic structure for a piece of writing by setting out a sequence of cohesive ties to which the writer supplies the content. Again we have found this strategy especially useful for children with reading problems, many of whom have managed through it to produce the most logically ordered and well written pieces of information writing of their lives. An example of one writing frame which gets children to reflect upon their own learning as they write is given below.

Although I already knew that

I have learnt some new facts. I learnt that

I also learnt that

Another fact I learnt

However the most interesting thing I learnt was

Conclusion

Although the insights about learning and the model of teaching which is based upon them have been developed in the context of our work on literacy in the primary school, we feel that these ideas have wide applicability. In particular we feel that the four stage description of the teaching process, as well as its incarnation as reciprocal teaching, has great potential. There is some evidence that it is the process which parents of young children tend to use quite naturally in their interactions with their children. We would suggest, therefore, that there are great potential benefits in the application of these principles in the teaching of literacy.

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